



NALANDA COLLEGE - COLOMBO 10

Grade 11 Mathematics Unit Test

1) Real Numbers

Part I

1. Simplify. $4\sqrt{3} + 2\sqrt{3}$
2. Simplify. $5\sqrt{3} + 2\sqrt{2} + 3\sqrt{3} - \sqrt{2}$
3. Simplify. $\sqrt{3} + 2\sqrt{2} + 5\sqrt{3} - \sqrt{2}$
4. Express $\sqrt{405}$ as a surd.
5. Convert the surd $5\sqrt{2}$ to an entire surd.
6. Simplify. $6\sqrt{11} + 2\sqrt{99} - 3\sqrt{44}$
7. Multiply. $5\sqrt{3} \times 2\sqrt{2}$
8. If $\sqrt{2} = 1.44$ find the value of $\frac{3}{\sqrt{2}}$
9. Simplify. $2\sqrt{14} \div 4\sqrt{7}$
10. Rationalize the denominator of the fraction $\frac{5\sqrt{2}}{3\sqrt{3}}$

Part II

- 1) i. If $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$ find the value of the following fractions.

a) $\frac{4}{\sqrt{3}}$

b) $\frac{2}{\sqrt{5}}$

- ii. Simplify.

a) $2\sqrt{12} + \sqrt{32} - 4\sqrt{3}$

b) $3\sqrt{28} - 4\sqrt{7} + 3\sqrt{3} + 2\sqrt{27}$

- iii. Write the following entire surds as surds.

a) $\sqrt{75}$

b) $\sqrt{147}$

- 2) a) Simplify.

i. $\frac{4}{\sqrt{3}} + 2\sqrt{3} - 5\sqrt{3}$

ii. $\frac{5}{\sqrt{3}} + 2\sqrt{27} - \frac{4\sqrt{3}}{3}$

iii. $\sqrt{176} - 3\sqrt{44} + 5\sqrt{11}$

- b) Simplify.

i. $5\sqrt{3} \times \sqrt{2} \times 2\sqrt{2}$

ii. $6\sqrt{27} \div 3\sqrt{3}$

- 3) a) Choose rational numbers from the real numbers given below.

$\frac{1}{2}, -9, 1.51, \dots, \sqrt{35}, \sqrt{16}, \bar{n}$



b) Write the following entire surds as surds.

i. $\sqrt{80}$

ii. $\sqrt{175}$

c) Simplify.

i. $\sqrt{32} + \sqrt{75} - \sqrt{2} + \sqrt{32}$

ii. $2\sqrt{45} + \sqrt{3} - 2\sqrt{20} - \sqrt{12}$

d) Rationalize the denominator, of the given fractions with irrational denominators.

i. $\frac{3\sqrt{5}}{2\sqrt{7}}$

ii. $\frac{4\sqrt{2}}{3\sqrt{3}}$